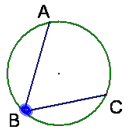
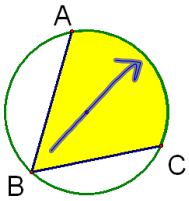
11.5 Inscribed Angles and Polygons

Inscribed angleis an angle whose vertex is on a circle and whose sides contain chords of the circle.

∠ABC

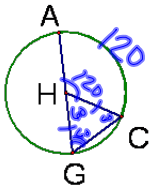


Intercepted arc-is the arc formed by the angle



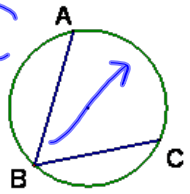
Find:
m∠AHC = 120
m∠AGC = 60

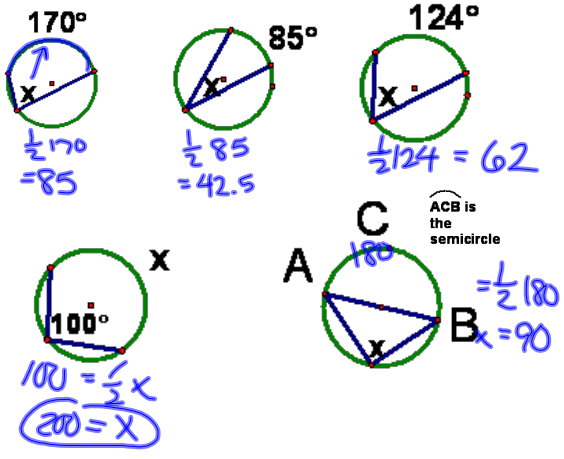
$\overset{\frown}{mAC} = 120°$



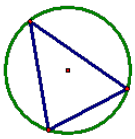
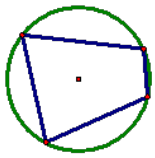
Theorem 11.7-If an angle is inscribed in a circle, then its measure is half of the measure of its intercepted arc.

$m\angle B = \frac{1}{2} m\overset{\frown}{AC}$

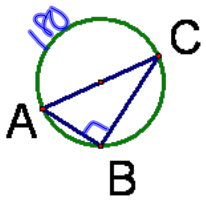


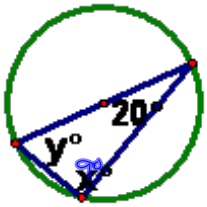


If all of the vertices of a polygon lie on a circle, then the polygon is **inscribed** in the circle, and the circle is **circumscribed** about the polygon.

Theorem 11.8-If a **right** triangle is inscribed in a circle, then the **hypotenuse** is the **diameter**.





90
+ 20
110

180
-110
y = 70

X = 90

inscribed
What type of angle is ∠I?

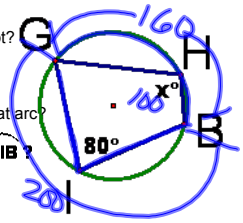
GB
What arc does ∠I intercept?

160
What it the measure of that arc?

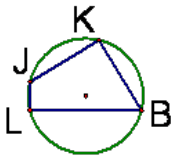
200
What is the measure of $\overset{\frown}{GIB}$?

100
What is the measure ∠H?

Supplementary
What do you notice about ∠I and ∠H?

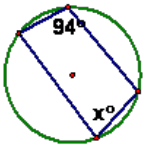


Theorem 11.9-If a quadrilateral is in scribed in a circle, then opposite angles are supplementary.

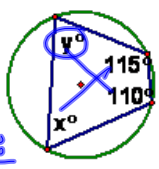


∠J + ∠B are supp.
∠L + ∠K are supp.

180
-105
75 = x

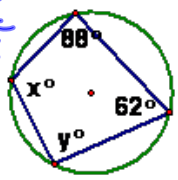


180
-94
x = 86



180
-115
x = 65

-180
y = 70



180
-62
x = 118

180
-88
y = 92